Condensed Survey Results for the Great Lakes (Region 1)

I. Threats to habitats in the Great Lakes (Region 1)

Criteria for inclusion: The following **categories** of threats and **specific threats** were identified as "significant" or "moderate." The percentages listed below are the combined proportion of respondents indicating these threats as "significant" or "moderate," excluding those who answered "I don't know."

Invasives and other problematic species and genes: *Threats from non-native and native plants, animals, pathogens/microbes, or genetic materials that have or are predicted to have harmful effects on biodiversity following their introduction, spread, and/or increase in abundance*	**97.4%**	**149**	
Invasive/alien species	98.6%	136	Increase
Problematic native species (e.g. overabundant native deer or algae)	72.3%	99	Increase
Plant diseases	60.6%	60	Increase
Introduced genetic material (such as crop, seed stock, biocontrol, stocked/released species, etc.)	60.0%	57	Increase
Residential and commercial development: *Threats from human settlements or other nonagricultural land uses with a substantial footprint*	**88.8%**	**135**	
Commercial and industrial areas	90.8%	118	Increase
Housing and urban areas	89.9%	116	Increase
Tourism and recreation areas (e.g., sites with a substantial footprint – golf courses, campgrounds, etc.)	42.1%	53	Remain the same
Natural systems modifications: *Threats from human activities that alter, destroy, and disturb habitats and species associated with nonconsumptive uses of biological resources*	**82.1%**	**119**	
Conversion of natural habitats to other land uses	90.3%	102	Increase
Dams and water management/use	65.7%	71	Remain the same
Over-mowing of natural areas	57.6%	57	Remain the same
Fire and fire suppression	48.0%	48	Remain the same
Log jam removal	42.7%	41	Remain the same
Agriculture and aquaculture: *Threats from farming and ranching as a result of agricultural expansion and intensification, including silviculture, mariculture, and aquaculture*	**81.1%**	**120**	
Annual and perennial nontimber crops	85.6%	95	Increase
Conversion of habitat to annual crops	83.9%	94	Increase
Livestock farming and ranching	68.6%	72	Tie - Increase/Remain the same
Aquaculture	23.2%	16	Remain the same
Wood and pulp plantations	18.8%	16	Remain the same
Pollution: *Threats from introduction of exotic and/or excess materials or energy from point and nonpoint sources*	**78.9%**	**116**	
Runoff from roads/service corridors	87.9%	94	Increase
Agriculture, residential, and forestry effluents	85.2%	92	Increase
Household sewage and urban water waste	81.4%	83	Increase
Point source pollution from commercial/industrial sources	80.7%	88	Remain the same
Chemical spills	68.6%	70	Remain the same
Air pollution (e.g., smoke, mercury emissions)	66.3%	65	Remain the same

Garbage and solid waste	60.0%	60	Remain the same
Excess energy (e.g., noise/light pollution, warm water discharge, etc.)	57.1%	56	Remain the same
Human intrusion and disturbance: *Threats from human activities that alter, destroy, and disturb habitats and species associated with nonconsumptive uses of biological resources.*	**77.8%**	**112**	
Recreation activities (e.g., ATVs, trail use, horseback riding, high-speed boating, canoeing)	65.7%	69	Increase
Climate change and severe weather: *Long-term climactic changes that may be linked to global warming and other severe climactic or weather events outside the natural range of variation that could wipe out vulnerable species or habitat.*	**65.5%**	**91**	
Shifting and alteration of habitats due to climate change	91.0%	81	Increase
Changing frequency, duration, and intensity of drought	90.0%	81	Increase
Temperature extremes	90.0%	81	Increase
Changing frequency, duration, and intensity of floods	88.8%	79	Increase
Shifting seasons/phenology	87.1%	74	Increase
Transportation and service corridors: *Threats from long, narrow transport corridors and the vehicles that use them, including associated wildlife mortality*	**60.4%**	**87**	
Roads and railroads	82.4%	70	Increase
Utility and service lines	63.0%	51	Remain the same
Shipping lanes	32.3%	21	Remain the same
Flight paths	27.1%	19	Remain the same
Other stressors: *Additional threats and stressors directly affecting habitats, such as diseases and genetic diversity issues*	**51.9%**	**56**	
Diseases	80.0%	28	Increase
Low genetic diversity (due to reduced population size, species inbreeding, etc.)	75.5%	37	Increase
Energy production and mining: *Threats from production of nonbiological resources*	**35.2%**	**45**	
Fossil fuel energy production	77.8%	28	Remain the same
Shale gas development (e.g., fracking)	56.0%	14	Remain the same
Oil and gas drilling	45.5%	15	Remain the same
Renewable energy production	44.4%	16	Increase
Mining and quarrying	38.7%	12	Remain the same
Biological resource use: *Threats from consumptive use of "wild" biological resources including deliberate and unintentional harvesting effects; also persecution or control of specific species*	**30.5%**	**43**	
Forestry practices (e.g., silvicultural methods leading to the lack of early successional habitat)	57.1%	20	Remain the same

II. Conservation actions for habitats in the Great Lakes (Region 1)

Criteria for inclusion: The following **categories** of actions and **specific actions** were identified as "very important" or "moderately important." The percentages listed below are the combined proportion of respondents indicating these actions as "very important" or "moderately important," excluding those who answered "I don't know."

	Education and awareness: *Actions directed at people to improve understanding and skills, and influence behavior.*	**95.1%**	**136**
1.	Educational programs in general	92.4%	122
2.	Educational programs specifically for K-12	84.7%	111
3.	Training programs for stakeholders	75.0%	93
4.	Improvement of signage and other communication materials in conservation areas	68.2%	88

	Land/Water/Species Management: *Actions directed at conserving or restoring sites, habitats, and the wider environment as well as actions directed at managing or restoring species, focused on the species of concern itself.*	**92.9%**	**131**
5.	Manage urban woodlots	100.0%	8
6.	Restore and integrate diversity of habitats into crop-production dominated landscapes	100.0%	15
7.	Control invasive species in HABITAT	96.9%	123
8.	*Control invasive species in barren lands*	*100.0%*	*3*
9.	*Control invasive species in developed lands*	*100.0%*	*8*
10.	*Control invasive species in wetlands*	*100.0%*	*23*
11.	*Control invasive species in aquatic systems (e.g., Asian carp, zebra mussels, invasive aquatic plants)*	*97.8%*	*44*
12.	*Control invasive species in forests*	*94.7%*	*18*
13.	*Control invasive species in agricultural lands*	*93.3%*	*14*
14.	*Control invasive species in grasslands*	*92.9%*	*13*
15.	*Control invasive species in subterranean systems*	*N/A*	*N/A*
16.	Protect adjacent buffer zones	95.7%	67
17.	Protect and enhance undeveloped shorelines	95.6%	65
18.	Reduce losses of fish and wildlife habitats (due to agriculture, urban sprawl, commercial development, etc.)	95.2%	120
19.	Restore habitats and natural systems in HABITAT	93.3%	98
20.	*Restore habitats and natural systems in barren lands*	*100.0%*	*3*
21.	*Restore habitats and natural systems in wetlands*	*100.0%*	*23*
22.	*Restore habitats and natural systems in forests*	*94.7%*	*18*
23.	*Restore habitats and natural systems in grasslands*	*93.3%*	*14*
24.	*Restore habitats and natural systems in aquatic systems*	*88.9%*	*40*
25.	*Restore habitats and natural systems in subterranean systems*	*N/A*	*N/A*
26.	Promote diversity of wetland types and successional stages	91.3%	21
27.	Reduce stream bank erosion	90.9%	40
28.	Reduce nutrient and toxin loads (e.g., heavy metals, pharmaceuticals, fertilizers, insecticides)	89.5%	111
29.	Develop and promote farming technologies and practices that have conservation benefits (e.g., cover crops, no till)	89.0%	113
30.	Increase acres of riparian buffers	88.1%	111
31.	Reestablish natural disturbance regimes in HABITAT	87.9%	51
32.	*Reestablish natural disturbance regimes in barren lands*	*100.0%*	*3*
33.	*Reestablish natural disturbance regimes in forests*	*88.9%*	*16*
34.	*Reestablish natural disturbance regimes in grasslands*	*86.7%*	*13*
35.	*Reestablish natural disturbance regimes in wetlands*	*86.4%*	*19*
36.	*Reestablish natural disturbance regimes in subterranean systems*	*N/A*	*N/A*
37.	Restore and integrate diversity of habitats into developed landscapes	87.5%	7
38.	Link existing habitat blocks through corridor enhancement in HABITAT	85.6%	107
39.	*Link existing habitat blocks through corridor enhancement in agricultural lands*	*100.0%*	*15*
40.	*Link existing habitat blocks through corridor enhancement in barren lands*	*100.0%*	*3*
41.	*Link existing habitat blocks through corridor enhancement in forests*	*89.5%*	*17*

42.	*Link existing habitat blocks through corridor enhancement in developed lands*	*87.5%*	*7*
43.	*Link existing habitat blocks through corridor enhancement in wetlands*	*82.6%*	*19*
44.	*Link existing habitat blocks through corridor enhancement in aquatic systems*	*81.0%*	*34*
45.	*Link existing habitat blocks through corridor enhancement in grasslands*	*80.0%*	*12*
46.	*Enhance corridors in subterranean systems*	*N/A*	*N/A*
47.	Reduce stream head cutting	85.0%	34
48.	Improve drainage management	83.3%	100
49.	Promote diversity of grassland types and successional stages	80.0%	12
50.	Promote diversity of forest types and successional stages	78.9%	15
51.	Decrease number of combined sewer overflow events	77.9%	53
52.	Improve integrated pest management	73.3%	11
53.	Control problematic native species in HABITAT	70.7%	87
54.	*Control problematic species (e.g., deer, raccoon, skunk, coyote, domestic cat, feral hog) in barren lands*	*100.0%*	*3*
55.	*Control problematic species (e.g., deer, raccoon, geese, domestic cat, feral hog) in agricultural lands*	*86.7%*	*13*
56.	*Control problematic species (e.g., deer, raccoon, domestic cat, feral hog) in forests*	*78.9%*	*15*
57.	*Control problematic native species in aquatic systems*	*75.0%*	*33*
58.	*Control problematic species (e.g., deer, raccoon, geese, domestic cat, feral hog, exotic/aggressive vegetation) in developed lands*	*75.0%*	*6*
59.	*Control problematic species (e.g., deer, raccoon, domestic cat, feral hog, exotic/aggressive vegetation) in wetlands*	*60.0%*	*12*
60.	*Control problematic species (e.g., raccoon, skunk, coyote, domestic cat) in grasslands*	*35.7%*	*5*
61.	*Control problematic native species in subterranean systems*	*N/A*	*N/A*
62.	Increase acres enrolled in the Classified Forest and Wildlands Program	68.1%	81
63.	Decrease E. coli counts	65.1%	41
64.	Dam removal	55.6%	35
65.	Species reintroduction. Please specify:	54.5%	12
66.	Reduce recreational overuse of HABITAT	53.6%	52
67.	*Reduce recreational overuse of aquatic systems*	*59.1%*	*26*
68.	*Reduce recreational overuse of wetlands*	*54.5%*	*12*
69.	*Reduce recreational overuse of grasslands*	*50.0%*	*7*
70.	*Reduce recreational overuse of forests*	*41.2%*	*7*
71.	*Reduce recreational overuse of subterranean systems*	*N/A*	*N/A*
72.	Manage biofuel grasslands	52.2%	12
73.	Ex situ conservation (protection of a species outside of its natural habitat). Please specify:	38.4%	28
74.	Remove log jams	33.3%	13
75.	Mine reclamation	23.3%	17
76.	Protect natural water regimes (e.g., withdraws, warm-water discharge)	0.0%	0

	Land/water protection: *Actions to identify, establish, or expand parks and other legally protected areas, and to protect resource rights.*	**88.3%**	**128**
77.	Preserve currently existing corridors	97.5%	118
78.	Acquire currently unprotected HABITAT	97.1%	100
79.	*Acquire currently unprotected aquatic systems (manage and/or educate for easement habitat values)*	*97.6%*	*41*
80.	*Acquire currently unprotected barren lands*	*100.0%*	*4*
81.	*Acquire currently unprotected forests*	*94.7%*	*18*
82.	*Acquire currently unprotected grasslands*	*93.3%*	*14*
83.	*Acquire currently unprotected wetlands*	*100.0%*	*23*
84.	*Acquire currently unprotected subterranean habitats*	*N/A*	*N/A*
85.	Acquire conservation easements to protect important wildlife habitats	94.3%	115
86.	Build/strengthen CRP partnerships	92.2%	107
87.	Reduce conversion to cropland	88.9%	104

	Law and policy: *Actions to develop, change, influence, and help implement formal legislation, regulations, and voluntary standards.*	**85.9%**	**116**
88.	Improve compliance with and enforcement of current policies	94.5%	104
89.	Increase regulations on invasive species	92.0%	103

90.	Reduce urban sprawl through planning and zoning	88.0%	95
91.	Increase compliance of existing rules and regulations for aquatic systems	86.8%	33
92.	Change current laws, policies, and regulations. Please specify:	83.1%	59
93.	Establish submergent vegetation control guidelines	80.6%	29
94.	Set private sector standards and codes	74.7%	74
95.	Establish rules and guidelines for piers and other structures	59.5%	22
96.	Establish legal lake levels	50.0%	17
	Livelihood, economic, and other incentives: *Actions to use economic and other incentives to influence behavior.*	**83.6%**	**112**
97.	Manage recreational opportunities to be compatible with fish and wildlife habitats	89.7%	96
98.	Promote nonmonetary values of natural systems within the state	85.2%	92
99.	Support substitution of alternatives for environmentally harmful products and processes	85.1%	86
100.	Promote conservation payment programs (e.g., payment for ecosystem services, conservation easements)	81.7%	85
101.	Link natural resources to livelihoods through nature tourism	79.1%	87
102.	Promote market forces (e.g., creation of a nitrogen trading market, promotion of alternative agricultural markets) as a tool for conservation	63.7%	58
	External capacity building: *Actions to build the infrastructure to do better conservation.*	**73.3%**	**99**
103.	Promote use of research and science in conservation decision-making processes	95.9%	93
104.	Develop alliances and partnerships (e.g., between producers, landowners, and conservation professionals)	94.6%	88
105.	Strengthen conservation financing	93.5%	86
106.	Increase state's capacity for research and monitoring of conservation actions	91.5%	86
107.	Promote green infrastructure	90.1%	82
108.	Develop institutions and civil society	71.2%	52

III. Participation in conservation actions for habitats in the Great Lakes (Region 1)

Criteria for inclusion: Respondents were asked if their agency/organization had acted or plans to take action in a general category of conservation actions within this region. "I don't know" responses to this question were excluded for this analysis. Responses were aggregated across all habitat types.

Have you taken (since 2005) or do you currently plan to take conservation actions in this category for fish and wildlife habitats within HABITAT in the Great Lakes (Region 1)?

	Yes		No		Total
	%	N	%	N	Responses
Land/water protection	72.9%	70	27.1%	26	96
Land/water/species management	80.6%	79	19.4%	19	98
Education and awareness	88.0%	88	12.0%	12	100
Law and policy	38.1%	32	61.9%	52	84
Livelihood, economic, and other incentives	38.5%	30	61.5%	48	78
External capacity building	48.1%	37	51.9%	40	77